



# *North Atlantic* Industries

## *Power Supply Selection Guide*



**DC/DC  
Holdup Units**



**AC/DC & DC/DC  
Power Supplies**



**High Power LRU  
Standalone**

# North Atlantic Industries Rugged Power Systems

North Atlantic Industries, Inc. (NAI) a U.S. certified small business designs and manufactures high-density full featured conduction-cooled power supplies for rugged defense, industrial and commercial applications operating in extreme conditions.



Offering a full line of High Efficiency COTS, Modified COTS & Custom Power Supplies



All Products Designed, Manufactured, Assembled & Tested in the U.S.A



100% Environmental Stress Screening



Maximum power output over the entire Temperature Range -40°C to +85°C

As market demand increasingly requires higher efficiency, wider input voltage ranges, smaller sizes and greater levels of intelligence, NAI's discrete component design approach offers multiple benefits when compared to pre-packaged circuits including:

- High Power, SOSA™ Aligned VPX Products
- Wide DC Input Ranges
- I<sup>2</sup>C Interface provides status & programmability
- Ability to rapidly adapt to custom power, mechanical & signaling requirements
- Greater ability to address customer size constraints
- Reduced non-recurring charges
- Designed for Rugged, Military Applications
- USB port monitoring capability
- Lower risk and higher reliability (parts Derated)
- Improved Obsolescence Management
- COTS products with 10+ years of Long-Term Support

Thousands of MIL-STD compliant units fielded across a wide variety of air, land, sea systems, you can count on NAI to meet your most challenging harsh environment power requirements.

## Applications



AWACS Radar System  
VPX55H DC/DC PSU



Abrams SEP V2/V3/V4  
44KS5 VPX DC/AC Inverter



A330  
VPX55 DC/DC PSU



F-18 IRST  
VPX57-31 DC/DC PSU



M109 Howitzer  
VPX68 DC/DC PSU



Next Generation Jammer  
VPX56H-6 AC/DC PSU



RAM Launcher (RIM-116)  
56XS1, 2,000 Watt PSU



Compass Call  
56XS1-028 2,000W LRU

# Standalone Power Supplies

NAI's AC/DC standalone EMI compliant power supplies accept a 3Ø AC input as well as a +270 Volt DC input and are available in a single output with operating power of 2,000 Watts. All units are specified over their full operating temperature range at full-load conditions.

These rugged units are baseplate conduction-cooled and are specifically designed with NAVMAT component derating for rugged defense and industrial applications. These power supplies have integrated, standalone compliant EMI filters per MIL-STD-461.

## Standard Features:

- Input Transient Protection Per MIL-STD-704F
- Integrated EMI filtering & compliance per MIL-STD-461 (CE102, CS101, CS114, CS115, CS116, RE102, RS103)
- Environmental compliance per MIL-STD-810G DO-160G
- Over-Temperature Warning & Shutdown
- Continuous Background Built-In-Test (BIT)
- Current Share with monitoring
- Remote Error Sensing

## Configurability:

Configurable designs are pre-qualified to MIL-STD-810 & DO-160 environmental compliance requirements as well as integrated EMI filtering per MIL-STD-461 and input transient protection per MIL-STD-704.

Typical applications include:

- Payload Power
- Distributed DC Power
- Flight Controls
- Weapon Deployment

## High Power LRU Power Supplies



**56XS1**

- **2,000 Watts Max Power**
- 3Ø AC or 270 VDC Input
- +12V, +15V, +24V, +28V, +32V or +48 VDC Single Output Options
- 90% Typ. Efficiency
- Optional RS-485 Communication & Control Option
- Operational at full load: -55°C to +85°C



**56XS2**

- **1,000 Watts Max Power**
- 3Ø AC Input
- +270 VDC Output
- 87.5% Typ. Efficiency
- Operation at full load: -55°C to +85°C



**56WS2**

- **1,500 Watts Continuous / 3,000 Watts Peak Power**
- 3Ø AC or 270 VDC Input
- +28 VDC Output
- >80% Efficiency
- ATR Style Case
- Operation at full load: -40°C to +85°C



**56WS4**

- **1,500 Watts Max Power**
- 3Ø AC or +270 VDC Input
- +28 VDC & +48 VDC Output Options
- 90% Typ. Efficiency
- Environmental Intrusion Protection per IP66/66K
- Operation at full load: -55°C to +85°C



# Rugged VPX Power Supplies

NAI offers COTS and Modified COTS power supplies and power converters that plug directly into standard 3U and 6U chassis and are conduction-cooled through the card edge/wedgelock.

## Choose from Three Product Families:

- VPX Power Supplies DC/DC
- DC/DC Holdup & Power Conditioning Units
- VPX Power Supplies AC/DC

With their advanced design, these rugged power supply units accept either +28 VDC input, +270 VDC input or 3Ø AC input. DC/DC Holdup & Power Conditioning units are available to accept +28 VDC input or back end +12 VDC input. These off-the-shelf solutions for VITA 46.0 and VITA 65 systems are compatible with VPX specifications; support all VITA standard I/O, signals, and features; and conform to the VITA 62 mechanical and electrical requirements for modular power supplies.

## Features and Configurability:

The NAI VPX family of power products include a variety of standard features:

- High Power, SOSA™ Aligned VPX Products
- Integrated EMI filtering per MIL-STD-461
- Environmental compliance per MIL-STD-810, DO-160 and VITA 47
- Continuous Background Built-In-Test (BIT)
- Status signaling and temperature monitoring
- User programmability
- Current Share
- I<sup>2</sup>C Communication
- Intelligent Communication Interfaces
- Remote Error Sensing

Our discrete component design approach allows our customers to select from a full-feature library to create high reliability power solutions that meet their specific requirements - with little or no NRE.

Our use of proven discrete component technology allows:

1. Wider input ranges
2. Higher reliability
3. Lower risk designs
4. More efficient layout of components compared to alternative, prepackaged product designs.

## Power Supplies DC/DC

### +28 VDC MIL-STD-704 Input



**VPX68**

- **400 Watts Max Power**
- 92% Typ. Efficiency
- 6 Voltage Outputs
- 3U 1.0" Chassis Pitch
- I<sup>2</sup>C IPMI
- **MIL-STD-1275E Compliant**
- **50 milliseconds of Holdup time at 400W**



**VPX55H-3**

- **500 Watts Max Power**
- 88% Typ. Efficiency
- 6 Voltage Outputs
- 3U 0.8" Chassis Pitch
- I<sup>2</sup>C IPMI
- CE102, CS101, CS115 & CS116 compliant

## Holdup & Power Conditioning Companion Units



**VPX55-3HU**

- **Front End Unit**
- **+28 VDC Input**
- **400 Watts Max Power**
- 50 msec Holdup Time
- +3.3\_AUX Standby
- 3U 0.8" Chassis Pitch
- I<sup>2</sup>C IPMI



**VPX56-3HU**

- **Front End Unit**
- **3Ø, AC Input**
- **Up to 500 Watts Max Power**
- 50 msec Holdup Time
- +3.3\_AUX Standby
- 3U 1.0" Chassis Pitch
- I<sup>2</sup>C IPMI

## +270 VDC MIL-STD-704 Input



### VPX55H2-3

- SOSA™ Aligned
- 725 Watts Max Power
- ≥ 90% Typ. Efficiency
- 6 Voltage Outputs
- 3U 1.0" Chassis Pitch
- I<sup>2</sup>C IPMI
- CE102, CS101, CS115 & CS116 compliant
- Option for High Power +12 w/ 3.3 AUX



### VPX57-31

- 500 Watts Max Power
- 87% Typ. Efficiency
- 6 Voltage Outputs
- 3U 1.0" Chassis Pitch
- I<sup>2</sup>C IPMI
- CE102 compliant
- High Altitude operation to 70,000 ft.



### VPX57H2-31

- SOSA™ Aligned
- 750 Watts Max Power
- 90% Typ. Efficiency
- 6 Voltage Outputs
- 3U 1.0" Chassis Pitch
- I<sup>2</sup>C IPMI
- CE102 compliant
- High Altitude operation to 70,000 ft.
- Option for High Power +12V w/ 3.3 AUX

## Power Supplies AC/DC

### 3Ø AC or +270 VDC



### VPX56H-6

- 1,000 Watts Max Power
- 89% Typ. Efficiency
- 5 Voltage Outputs
- 6U 1.0" Chassis Pitch
- I<sup>2</sup>C IPMI
- CE102, CS101, CS114 a & b & CA116 compliant



### VPX56H2-6

- SOSA™ Aligned
- 1,400 Watts Max Power
- ≥ 90% Typ. Efficiency
- 5 Voltage Outputs
- 6U 1.0" Chassis Pitch
- I<sup>2</sup>C IPMI
- CE102, CS101, CS114 a & b & CA116 compliant
- Option for High Power +12V w/ 3.3 AUX



### VPX55-BEHU

- Back End Unit
- Powered by +12V output from DC/DC converter
- 50 msec Holdup Time @ 500 Watts
- +3.3\_AUX Standby
- 3U 1.0" Chassis Pitch
- No EMI or Efficiency losses



### VPX57-BEHU

- Back End Unit
- Powered by +12V output from DC/DC converter
- 50 msec Holdup Time @ 500 Watts
- +3.3\_AUX Standby
- 3U 1.0" Chassis Pitch
- No EMI or Efficiency losses



### VPX56-BEHU

- Back End Unit
- 1,000 Watts Max Power
- Powered by +12V output from AC/DC converter
- 50 msec Holdup Time @ 1,000 Watts
- +3.3\_AUX Standby
- 6U 1.0" Chassis Pitch
- No EMI or Efficiency losses



## Smarter, Smaller, Faster Solutions for Air, Land & Sea

NAI's COTS and MCOTS Power Supplies are helping the world's largest defense, commercial aerospace and industrial companies meet critical power requirements with reliable high-density, SWaP-C Optimized solutions designed specifically for use in harsh environments.

### Quality

All products are 100% designed and manufactured in the USA. Our vertically integrated manufacturing facility and discrete component design approach provides us with unmatched levels of design flexibility and production control.

Well suited for both low and high-volume manufacturing, NAI's quality systems are certified to AS9100 Rev. D and ISO9001:2015 standards plus Federal Aviation Regulations FAR 21 & FAR 45.15

### Support You Can Count On

NAI's network of 33 sales offices covering 35 countries support customers and programs on a global basis. Our technical sales and application engineers bring decades of experience in helping customers design and develop high-performance power for mission critical applications. Call on us any time to discuss your requirements, investigate design options or troubleshoot a technical issue.



■ NAI Sales Coverage

North Atlantic Industries  
116 Wilbur Place,  
Bohemia, NY 11716

Tel: +1-631-567-1100

rev: 06242021  
[www.naii.com](http://www.naii.com)